

INSTRUCTION MANUAL

MODEL 2006-03 TEST UPCONVERTER

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**CROSS TECHNOLOGIES, INC.
6170 SHILOH ROAD
ALPHARETTA, GEORGIA 30005**

**(770) 886-8005
Toll Free 888-900-5588
FAX (770) 886-7964**

**WEB www.crosstechnologies.com
E-MAIL info@crosstechnologies.com**

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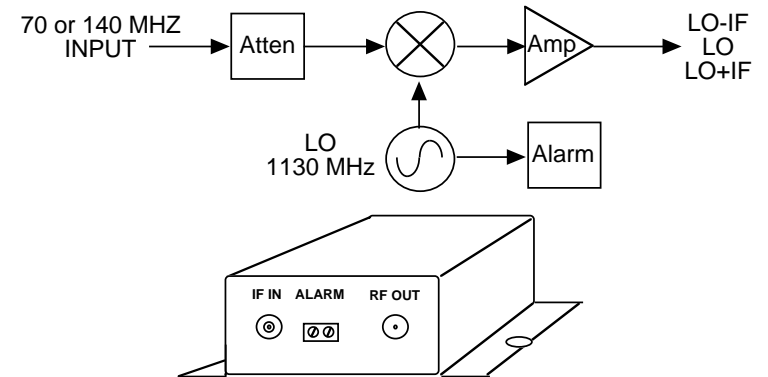
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2006-03 TEST UPCONVERTER

1.0 General

1.1 Equipment Description

The 2006-03 converts a 70 or 140 MHz IF signal to L-Band with a 1130 MHz LO frequency. The IF input is attenuated and then mixed with the 1130 MHz LO. The mixer output goes to the output amplifier. A green LED indicates the presence of DC power. An alarm is indicated through an open collector output to ground at the alarm terminal block when PLL is not locked. Power is provided by the LNB voltage from the receiver under test and connectors are BNC (female) for the IF input and type-F (female) for the RF output. **Option -P** includes a wall power supply for 115 VAC, 60 Hz. **Option -P4** includes a wall power supply that covers 90-260 VAC, 47-63 Hz. Specify US, EUR, AUS, or UK plug for **option -P4**. **Option -C** allows for power to come from a customer supplied wall mount power supply (unregulated +15VDC min, +18VDC max, center pin positive, 2.5mm jack).



**FIGURE 1.1 2006-04 Test Upconverter
Block Diagram and Chassis**

1.2 Technical Characteristics

TABLE 1.0 2006-03 UPCONVERTER SPECIFICATIONS*

Input Characteristics

Input Impedance/RL	75 Ω /15 dB
Frequency	70 or 140 MHz ± 20 MHz
Input Level Range	-10 dBm to -20 dBm
Input 1dB compression	0 dBm

Output Characteristics

Impedance/RL	75 Ω/12 dB
Frequency , LO	1130 MHz
Frequency , OUTPUT	LO-IF, LO, LO+IF
Level, with -10 dBm in	-15 dBm

Channel Characteristics

Gain	-5 ± 3 dBm
Spurious Response	NA; output not filtered
Frequency Response	±1 dB, over ± 20 MHz; ±0.5 dB, any 10 MHz

Synthesizer Characteristics

Frequency Accuracy	± 25 kHz max
Phase Noise(dBC/Hz)	≤ -80 @ 10kHz; ≤ -90 @ 100kHz; ≤ -100 @ 1MHz
Frequency Selection	NONE: Fixed tuned

Indicators

DC Power	Green LED
PLL Alarm	Terminal Block (open collector to ground, min sink current = 16ma)

Other

RF Connector	Type F (female)
IF Connector	BNC (female)
Size	3.4"W x 1.2"H x 4.0"D
Power	+14 to +20 VDC, 150 ma on RF IN from LNB
Power (option -P)	+15 VDC min, 150 ma, 115 VAC wall pwr supply
Power (option -P4)	90-260VAC, 47-63Hz wall ps (US, EUR, AUS, UK)
Power (option -C)	unregulated +15VDC min, +18VDC max, center pin positive, 2.5mm jack

*+10°C to +40°C; 2000 meters max elevation; 80% max humidity; Pollution Degree 2; Specifications subject to change without notice.

2.0 Installation

2.1 Mechanical

The 2006-03 is packaged in an aluminum chassis. The unit can be mounted to a panel using the 2 holes at the bottom side flange. The unit derives +DC (+14 to +20 VDC) from the RF out center conductor or +15 VDC from a wall mount power supply for the -P and -C models. (See Figure 2.1 and Figure 2.2).

2.1.1 Cleaning Instructions

Wipe the exterior with a dry, soft cloth. Use no detergent or cleaning chemicals.

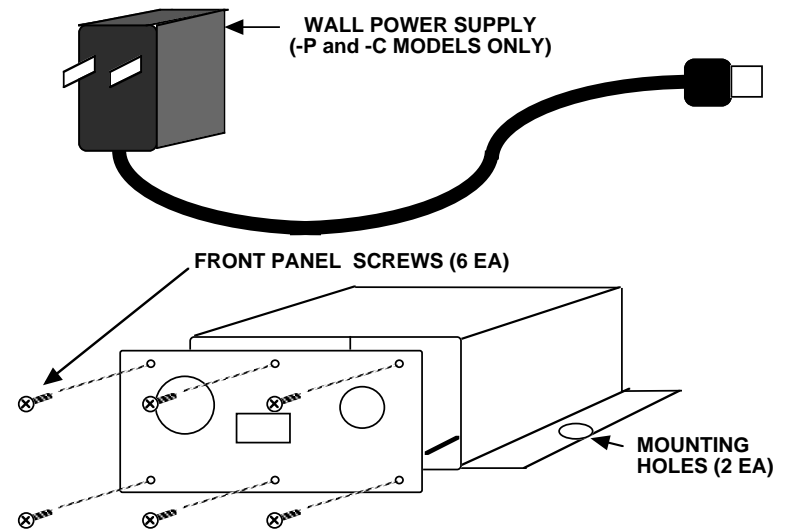


FIGURE 2.1 2006-03 Assembly Drawing

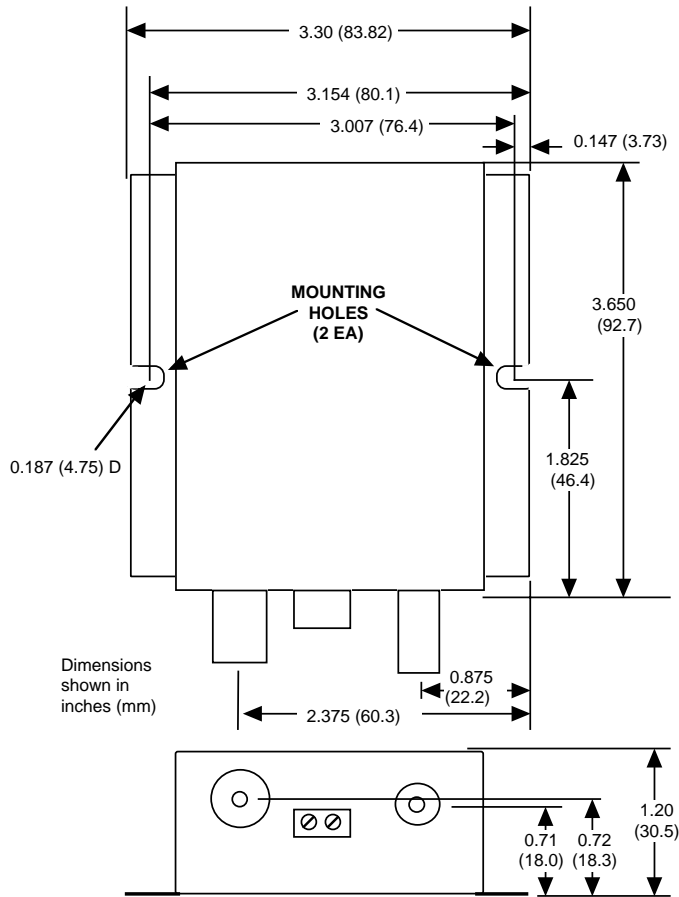


FIGURE 2.2 2006-03 Package Dimensions

2.2 Controls and Indicators

There are no controls. A green LED indicates presence of DC power and a terminal block indicates a PLL alarm with an open collector to ground at the ALM terminal (Figure 2.3).

2.3 Input / Output Signals

Figure 2.3 shows the input and output signals to the 2006-03.

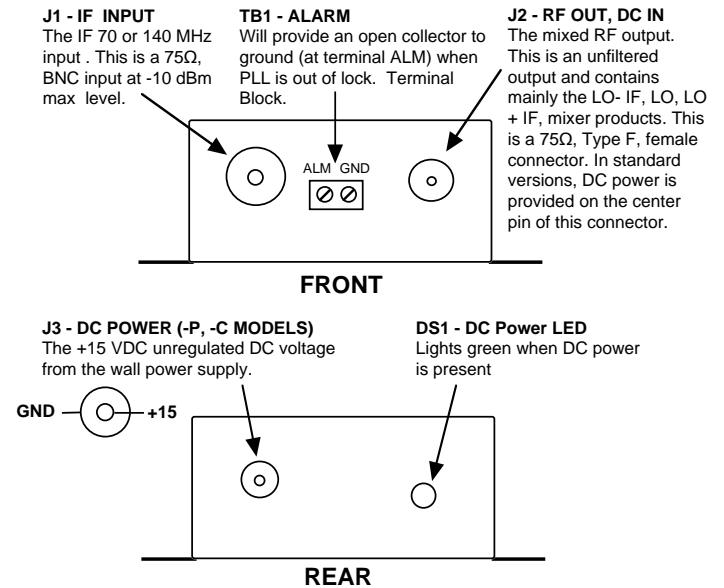


Figure 2.3 2006-03 Input, Output, Alarm Power LED, External DC In (-P, -C Options)

2.4 Installation / Operation

2.4.1 Installing and Operating the 2006-03

- 1.) Secure the 2006-03 to a panel using the two bottom mounting holes (see Figure 2.1 and Figure 2.2)
- 2.) Be sure the receiver LNB voltage to power the 2006-03, is +14 to +20 VDC on the RF center conductor. The -P, -P4, and -C models receive unregulated +15 VDC from a wall power supply provided either by Cross Technologies (-P, -P4) or by the customer (-C).
- 3.) Observe that the green power LED (DS1) is illuminated.
- 4.) Connect -10 dBm (maximum) signal to IF In, J1 (Figure 2.3).
- 5.) Connect the RF OUT, J2, to the receiver under test.

2.4.2 LO and IF for the 2006-03

The 2006-03 LO is fixed at 1130 MHz, and has a LO-IF, LO, and LO+IF output.

3.0 Circuit Description

3.1 Block Diagram Description - 2006-03 (Figure 3.1)

The 70 or 140 MHz input goes to an attenuator. The signal then goes to a mixer which receives the LO generated by the VCO and provides the LO \pm IF and LO unfiltered output. This signal next goes to an amplifier and a 50 to 75 ohm output matching pad. Commands for the phase lock loop IC are provided serially from the microcontroller which determines the frequency of the LO. A 25 MHz crystal provides the reference frequency for the synthesizer IC.

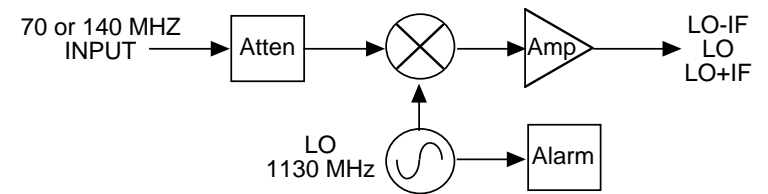


FIGURE 3.1 Block Diagram

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